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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,428	07/27/2001	Charles C. Haluzak	10008368-1	1124

7590 10/23/2003  
HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER

CREPEAU, JONATHAN

ART UNIT PAPER NUMBER

1746

DATE MAILED: 10/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/917,428

Applicant(s)

HALUZAK, CHARLES C.

Examiner

Jonathan S. Crepeau

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 July 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

## DETAILED ACTION

### *Claim Objections*

1. Claims 10 and 13 are objected to because of the following informalities: in claim 10, line 2, "each such fuel" should be changed to "each such fuel cell"; in claim 13, line 11, the period should be changed to a semicolon. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-10 and 13-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Jankowski et al (U.S. Pre-Grant Publication No. 2003/0138685). Regarding claims 1 and 14, the reference is directed to a miniaturized thin-film fuel cell (see abstract). As shown in Figure 8 and described in paragraph 43, the fuel cell comprises a manifold structure constructed from a first substrate (upper plate 211') having a face surface and a fuel chamber (220) defined therein for receiving the fuel, the fuel chamber further having an opening along the face surface. A first anode-electrolyte-cathode assembly (213) is secured to the top face surface of the substrate and hydraulically seals the fuel chamber from the oxidant chamber. Regarding the limitations that

the fuel chamber, electrolyte, etc. are “elongate,” the disclosure in paragraph 43 that element 220 is a “channel” is considered to be anticipatory of these limitations. Regarding claim 4, the substrate may comprise a plurality of elongate fuel chambers (see paragraph 43). Regarding claims 7 and 16, the fuel cell further comprises a second manifold structure constructed from a second substrate (lower plate 211') and a second anode-electrolyte-cathode assembly (213) secured to the bottom face of the second substrate (see Fig. 8). Regarding claims 8 and 16, the first and second manifold structures are spaced apart from each other and are operably secured within a frame (216) to define first and second oxygen containing regions within the frame. Regarding claims 9 and 13, the first and second substrates are bonded together, the back surfaces of the substrates allowing the respective fuel chambers to be in fluid communication with each other. Regarding claims 10, 15, and 17, a plurality of the fuel cells may be stacked, either within the same frame (i.e., horizontally) or along frames that are placed adjacent to each other (i.e., vertically) (see paragraph 43). Regarding claims 2 and 3, the substrate is a silicon wafer (see paragraphs 27 and 28). Regarding claims 5 and 14, the fuel cell is a proton exchange membrane fuel cell (see paragraphs 26 and 35). Regarding claim 6, the electrolyte may have a thickness of 0.5-50 microns (see paragraph 41).

Thus, the instant claims are anticipated.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1746

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jankowski et al. in view of Washington et al (U.S. Patent 5,300,370).

Jankowski et al. is applied to claims 1-10 and 13-17 for the reasons stated above.

However, the reference does not expressly teach that the plurality of channels, i.e., fuel chambers, are in fluid communication with each other in a parallel or serpentine configuration, as recited in claims 11 and 12.

Washington et al. is directed to a flow field assembly for a fuel cell. In column 13, line 45, the reference teaches that its flow field assemblies can be formed with continuous, serpentine flow channels.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the serpentine channel configuration of Washington et al. in the fuel cell of Jankowski et al. In column 3, line 12, Washington et al. teach that "[t]he continuous channel design promotes the forced movement of water through each channel before the water can coalesce, thereby promoting uniform reactant flow across the surface of the cathode." Accordingly, the artisan would be motivated to use the serpentine channel configuration of Washington et al. in the fuel cell of Jankowski et al.

Art Unit: 1746

*Conclusion*

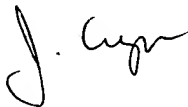
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (703) 305-0051 (prior to December 17, 2003) or (571) 272-1299 (after December 17, 2003). The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (703) 308-4333. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900. Additionally, documents may be faxed to (703) 872-9310 (for non-final communications) or (703) 872-9311 (for after-final communications).

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

JSC

October 20, 2003

  
JONATHAN CREPEAU  
PATENT EXAMINER  
ART UNIT 1746